WHAT IS CLAIMED IS:

1. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

holding the back surface of said substrate with a substrate-holding carrier installed in a polishing equipment; and

polishing said substrate so that the reaction force to said substrate generated when said substrate is pushed against a guide provided so as to surround said substrate for preventing said substrate from deviating from said carrier due to a friction force generated by the relative movement between said substrate and a polishing member provided on said polishing equipment, is dispersed, when said substrate is rotated while being integrated with said carrier while holding said substrate, and pushing said substrate against said polishing member provided in said polishing equipment.

2. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a semiconductor substrate having a thin insulating film on the surface thereof;

holding the back surface of said semiconductor; and

polishing said substrate in the state where the back surface of said semiconductor substrate is held, using a polishing member that has a different diameter and a different center location from the diameter and center location of said semiconductor substrate, while preventing said semiconductor substrate from moving laterally with a guide provided around said semiconductor substrate and having an elastic body on the inner wall thereof.

3. The method for polishing the surface of a semiconductor device substrate according to claim 1, wherein,

said guide has a recessed groove on the inner surface thereof, and

a constant distance is maintained between said polishing member and said recessed groove.

4. The method for polishing the surface of a semiconductor device substrate according to claim 3, wherein said guide is alternately provided with relief regions where said recessed groove does not contact said substrate.

5. The method for polishing the surface of a semiconductor device substrate according to claims 3 or 4, wherein said guide has a deflection-deformable structure.

6. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

pushing the surface of said substrate against the surface of a polishing member by applying pressure to the back surface of said substrate; and

polishing said thin film using said polishing member, while preventing said substrate from moving laterally caused by the friction force generated between said substrate and said polishing member with a guide that has recess at the location to contact with said substrate, and is provided so as to surround said substrate.

7. The method for polishing the surface of a semiconductor device substrate according to claim 6, wherein said recess has a V-groove shape.

8. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein the modulus of longitudinal elasticity of said polishing member in the polishing surface side is not less than 3,000 kg/cm^2.

9. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said polishing member is a fixed grinding machine on which grinding grains are fixed.

10. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said substrate is polished while supplying water that contains a dispersant on the

surface of said polishing member.

11. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said substrate is polished while supplying slurry that contains grinding grains on the surface of said polishing member.

12. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said polishing is performed while controlling said carrier based on the monitor information of the flatness of said substrate.

13. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, further comprising the step of controlling the quantity of the processing liquid intervening between said thin film and said polishing member by controlling the distance between said thin film and said polishing member.

14. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said thin film is a thin organic SOG film.

15. The method for polishing the surface of a semiconductor device substrate according to any one of claims 1 to 7, wherein said semiconductor device is provided with a capacitor for storing electric charge, and a transistor for supplying to or extracting from said capacitor.

16. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

forming a transistor on the surface of a semiconductor substrate;

forming an insulating film so as to cover said transistor;

holding the back surface of said substrate with a substrate-holding carrier installed on a polishing equipment;

polishing said substrate so that the reaction force to said substrate generated when said substrate is pushed against a guide provided so as to surround said substrate for preventing said substrate from deviating from said carrier due to a friction force generated by the relative movement between said substrate and a polishing member provided on said polishing equipment, is dispersed, when said substrate is rotated while being integrated with said carrier while holding said substrate, and pushing said substrate against said polishing member;

then forming an opening for electrically connecting said transistor and capacitor to said insulating film; and

forming a metal layer to be a wiring layer.

17. The method for polishing the surface of a semiconductor device substrate according to claim 16, wherein said guide has a recessed groove on the inner

wall thereof, and a constant distance is maintained between said polishing member and said recessed groove.

18. A method for polishing the surface of a semiconductor device substrate having a transistor, comprising the steps of:

forming a transistor on a semiconductor substrate;

forming an insulating film on said transistor;

holding the back surface of said semiconductor substrate; and

polishing said substrate in the state where the back surface of said semiconductor substrate is held, using a polishing member that has a different diameter and a different center location from the diameter and center of rotation of said semiconductor substrate, while preventing said semiconductor substrate from moving laterally with a guide provided around said semiconductor substrate and having an elastic body on the inner wall thereof.

19. A method for polishing the surface of a semiconductor device substrate having a transistor, comprising the steps of:

forming a transistor on a semiconductor substrate;

forming an insulating film on said transistor;

forming an opening in said insulating film;

forming a metal layer on said semiconductor substrate having said opening; and

holding a back surface of the substrate by means of a carrier for holding the substrate provided at a polishing equipment,

polishing said metal layer so that the reaction force to said substrate generated when said substrate is pushed against a guide provided so as to surround said substrate for preventing said substrate from deviating from said carrier due to a friction force generated by the relative movement between said substrate and a polishing member provided on said polishing equipment, is dispersed, when said substrate is rotated while being integrated with said carrier while holding said substrate, and pushing said substrate against said polishing member so as to leave the metal layer in said opening.

20. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

forming a transistor on a semiconductor substrate;

forming a first insulating film that has an opening for a contact hole, and a second insulating film that has a groove for wiring on said transistor;

forming a metal layer on said semiconductor substrate that has said first and second insulating films;

holding the back surface of said semiconductor substrate; and

polishing said metal layer in the state where the back surface of said semiconductor substrate is held, using a polishing member that has a different diameter and a different center of rotation from the diameter and center location of said semiconductor substrate, while preventing said semiconductor substrate from moving laterally with a guide provided around said semiconductor substrate and having an elastic body on the inner wall thereof, so as to leave said metal layer in said contact hole and groove.

21. A method for polishing the surface of semiconductor device substrate having a transistor, comprising the steps of:

forming a transistor on the surface of a semiconductor substrate;

forming an insulating film so as to cover said transistor;

pushing the back surface of said substrate against the surface of the polishing member by applying pressure to the back surface of said substrate;

polishing said insulating film using said polishing member, while preventing a lateral movement of said semiconductor substrate caused by polishing processing friction force generated between the substrate and the polishing member with a guide placed around said semiconductor substrate and having a recess

at a location that contacts with said substrate;

thereafter forming an opening for electrically connecting said transistor and capacitor; and

forming a metal layer to be a wiring layer.

22. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

holding said substrate with a carrier comprising a guide that has an inner dimension larger than the outer dimension of said substrate, and an elastic member that can hold the back surface of said substrate inside said guide;

thereafter pushing the surface of said substrate against the surface of a polishing member by applying pressure to the back surface of said substrate through said elastic member; and

polishing the thin film on the surface of said substrate by the relative motion between said substrate and said polishing member substrate in the state where said substrate is held,

wherein the protruded portions of the thin film on the surface of said substrate are flatly polished throughout the surface of said substrate, by pushing said substrate against the inner wall surface of said guide with the thrust generated by said

relative motion, deforming said inner wall surface by contact profiling on the outer circumference of said substrate, and dispersing the reaction force applied to the outer circumference of said substrate with said deformation by contact profiling.

23. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

holding said substrate with a carrier comprising a guide that has an inner dimension larger than the outer dimension of said substrate, and an elastic member that can hold the back surface of said substrate inside said guide;

thereafter pushing the top surface of said substrate against the surface of a polishing member by applying pressure to the back surface of said substrate through said elastic member; and

polishing the thin film on the surface of said substrate by the relative motion between said substrate and said polishing member,

wherein the protruded portions of the thin film on the surface of said substrate are flatly polished throughout the surface of said substrate, by the steps comprising pushing and restricting at least a part of the outer circumference of said substrate against a depressed groove formed on the inner wall

surface of said guide in the shape substantially similar to the shape of said substrate by thrust generated by the relative motion, and controlling the distance between the outer circumference of said substrate and the surface of said polishing member.

24. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

holding said substrate with a carrier comprising a guide that has an inner dimension larger than the outer dimension of said substrate, and an elastic member that can hold the back surface of said substrate inside said guide;

thereafter pushing the surface of said substrate against the surface of a polishing member by applying pressure to the back surface of said substrate through said elastic member; and

polishing the thin film on the surface of said substrate by the relative motion between said substrate and said polishing member substrate in the state where said substrate is held,

wherein the protruded portions of the thin film on the surface of said substrate are flatly polished throughout the surface of said substrate, by the steps comprising holding said substrate with a carrier that has an elastic member consisting of a thin

plate having a plurality of through holes and an elastic material having a smaller modulus of elasticity than said thin plate, laminated on said thin plate to form flow passages connected to said through holes, by sucking the back surface of said substrate through said through holes; pushing said substrate against the inner wall surface of said guide with the thrust generated by said relative motion; and reducing the reaction force applied to the outer circumference of said substrate.

25. A method for polishing the surface of a semiconductor device substrate, comprising the steps of:

providing a substrate having a thin film on the surface thereof;

holding said substrate with a carrier comprising a guide that has an inner dimension larger than the outer dimension of said substrate, and an elastic member that can hold the back surface of said substrate inside said guide;

thereafter pushing the surface of said substrate against the surface of a polishing member by applying pressure to the back surface of said substrate through said elastic member; and

polishing the thin film on the surface of said substrate by the relative motion between said substrate and said polishing member,

wherein the protruded portions of the thin film on the surface of said substrate are flatly

polished throughout the surface of said substrate, by the steps comprising pushing and restricting at least a part of the circumference of said substrate with the thrust generated by said relative motion against recessed groove formed on a plurality of wall surfaces protruded on the inner wall surface at a constant distance inside said guide in a shape having an envelope substantially similar to the outer diameter of said substrate, and controlling the distance between the outer circumference of said substrate and the surface of said polishing member.